CTEH®

THE SCIENCE OF READY℠

INTERCONTINENTAL TERMINALS COMPANY - TANK FIRE

Deer Park, TX

March 18, 2019 Project

#111356

Preliminary Data Summary

9970681

1.0 Introduction

On March 17, 2019 Intercontinental Terminals Company (ITC) requested that CTEH® conduct air monitoring in the surrounding community after a tank fire at the Deer Park, TX terminal. CTEH® arrived on-site on March 17, 2019 and began air monitoring operations. This report summarizes air monitoring data collected from March 17, 2019 17:02 CDT to March 18, 2019 11:30 CDT.

2.0 Air Monitoring Methodology

CTEH® developed and implemented an air sampling and analysis work plan (SAP) to document and quantify the release of fugitive emissions, if any, from the fire. All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Target analytes were measured as benzene, percent of the lower explosive limit (%LEL), Naphtha, 2.5-Micron particulate matter ($PM_{2.5}$), toluene, volatile organic compounds (VOCs), and Xylene using handheld instruments such as RAE Systems MultiRAEs, TSI SidePak™ AM510 Aerosol Monitors and Gastec GV-100 pumps with chemical-specific colorimetric detection tubes.

Hand-held air monitoring consisted of roaming air monitoring in the surrounding community. All hand-held air monitoring was conducted in the breathing zone.

3.0 Air Monitoring Results

Attachment A depicts the site location and hand-held monitoring locations for this reporting period.

Table 1 summarizes the results for community hand-held air monitoring readings.

Table 1: Community Hand-Held Real-Time Air Monitoring Results

Analyte	Instrument	Num Readings	Num Detections	Action Level Value	Basis for Action Level	Range[1]
Benzene	Gastec #121L	7	0	2.25ppm	¼ EPA 8hr AEGL-1	< 0.05 ppm
	UltraRAE	80	0	2.25ppm	¼ EPA 8hr AEGL-1	< 0.5 ppm
Formaldehyde	Gastec #91L	1	0	0.45ppm	½ EPA 8hr AEGL-1	< 0.05 ppm
Hexane	Gastec #102L	5	0	25ppm	½ DOE SCAPA TEEL-0 Value	< 1 ppm
Hydrogen Sulfide	Gastec #4LL	6	0	0.25ppm	½ EPA 8hr AEGL-1	< 0.1 ppm
	MultiRAE	58	0	0.25ppm	½ EPA 8hr AEGL-1	< 0.1 ppm

Analyte	Instrument	Num Readings	Num Detections	Action Level Value	Basis for Action Level	Range[1]
LEL	MultiRAE	125	0	1% (2.5% corrected value)	Elevated LEL	< 1 %
Naphtha	Gastec #106	23	0	50ppm	½ DOE SCAPA TEEL-0 Value	< 0.1 mg/L
Naphthalene	Gastec #60	16	0	5ppm	½ ACGIH TLV-TWA	< 0.1 ppm
Nitrogen Dioxide	Gastec #9L	10	0	0.25ppm	½ EPA 8hr AEGL-1	< 0.1 ppm
	MultiRAE	37	0	0.25ppm	½ EPA 8hr AEGL-1	< 0.1 ppm
Oxygen	MultiRAE	40	40	19.5%		20.9 %
PM2.5	AM510	60	60	0.138 mg/m^3	Wildfire Smoke Guidelines for 1 hr. avg. upper-bound breakpoint for unhealthy for sensitive groups AQI	0.007 - 0.053 mg/m^3
Sulfur Dioxide	MultiRAE	26	0	0.1ppm	½ EPA 8hr AEGL-1	< 0.1 ppm
Toluene	Gastec #122L	14	0	33.5ppm	½ EPA 8hr AEGL-1	< 0.5 ppm
VOCs	MultiRAE	153	1	0.5ppm	Approximate background level	0.1 ppm
Xylene	Gastec #123L	28	0	65ppm	½ EPA 8hr AEGL-1	< 1 ppm

[1]Maximum detections preceded by the "<" symbol are considered non-detections below the limit of detection (LoD) value to the right.

No detections during this reporting period exceeded the action levels as outlined in the CTEH® SAP. One detection of VOCs was recorded approximately 5.5 miles WSW from the fire. At the time of this report, all detections recorded during CTEH air monitoring efforts were below levels that would represent a public health concern.

4.0 Weather Conditions

Attachment B contains a wind rose depicting wind speed and direction since the start of beginning of the response. Data was acquired from the Texas Commission on Environmental Quality (TCEQ) Lynchburg Ferry meteorological station located on Tidal Road approximately 2 mi NNE of the fire.

Attachment A

CTEH Monitoring Locations

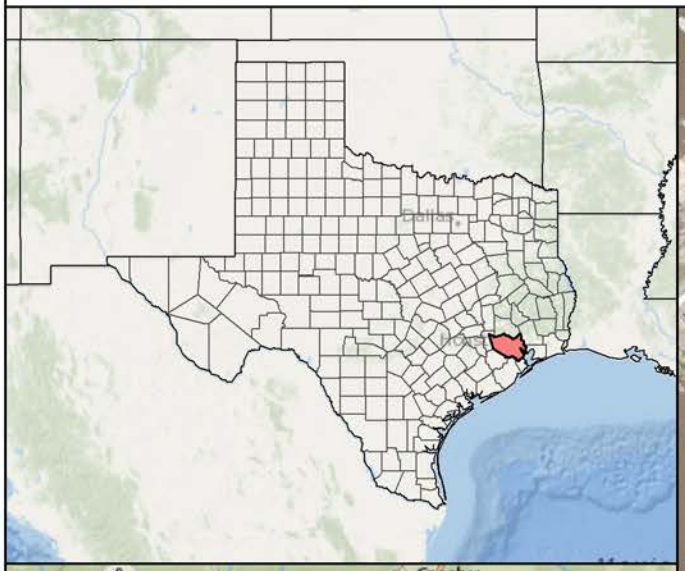
CTEH

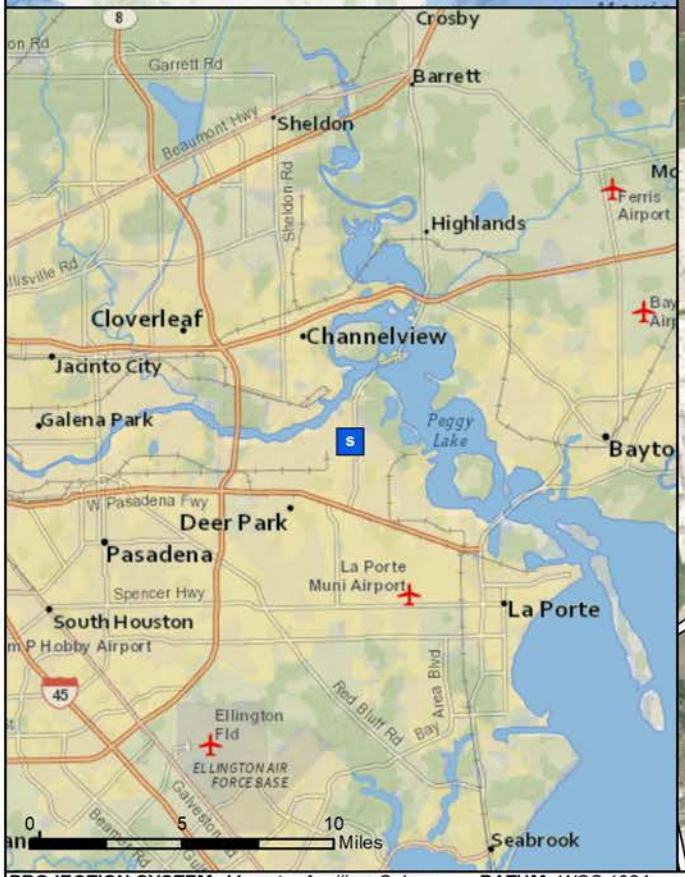
Incident Location

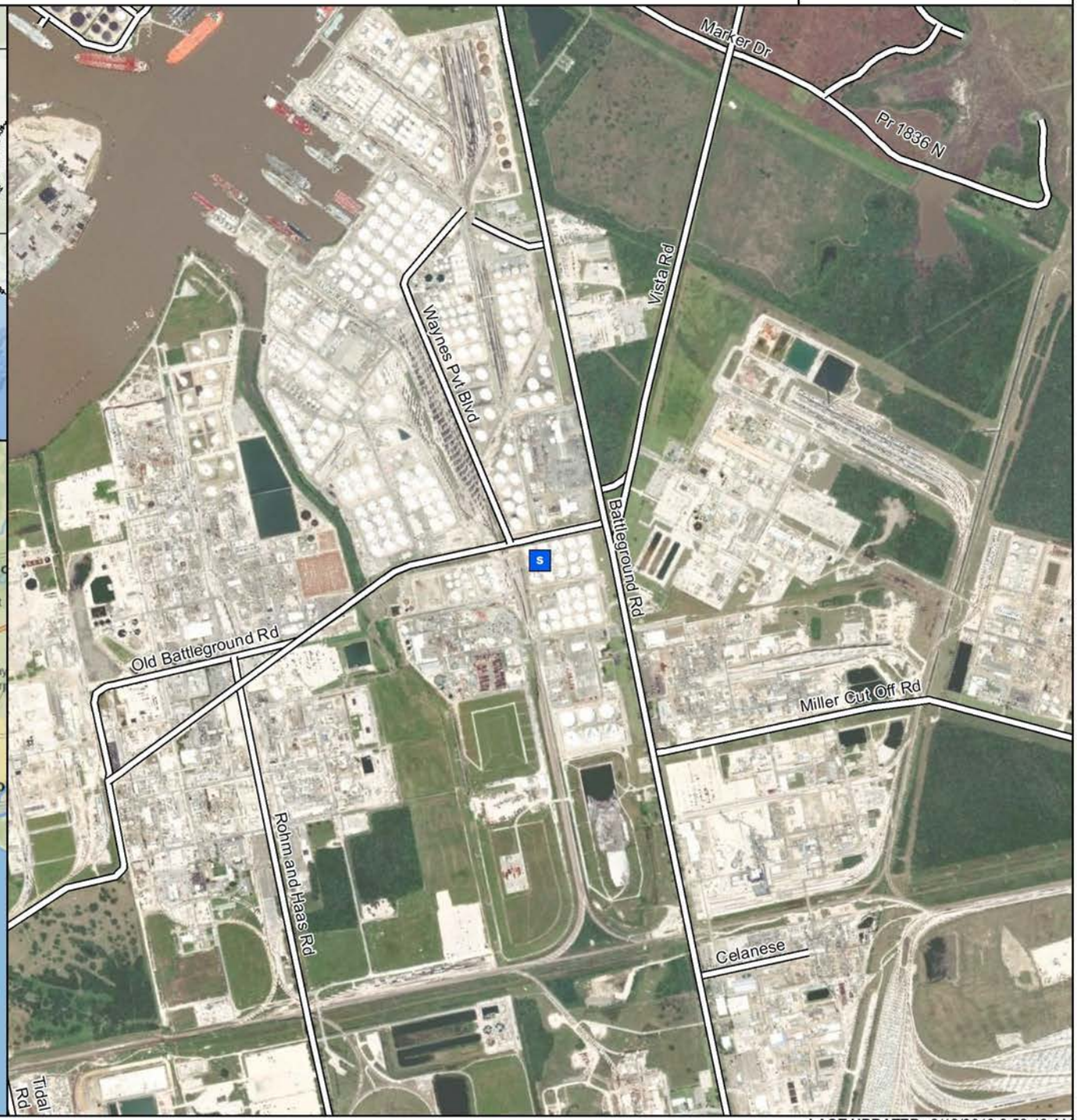
ITC Tank Fire

0 0.25 0.5 1 Miles

Project: 111356
Client: ITC
City: Deerpark, TX
County: Harris







PROJECTION SYSTEM: *Mercator Auxiliary Sphere* **DATUM:** *WGS 1984* **LAST UPDATED:** *3/18/2019 2:58:19 AM*

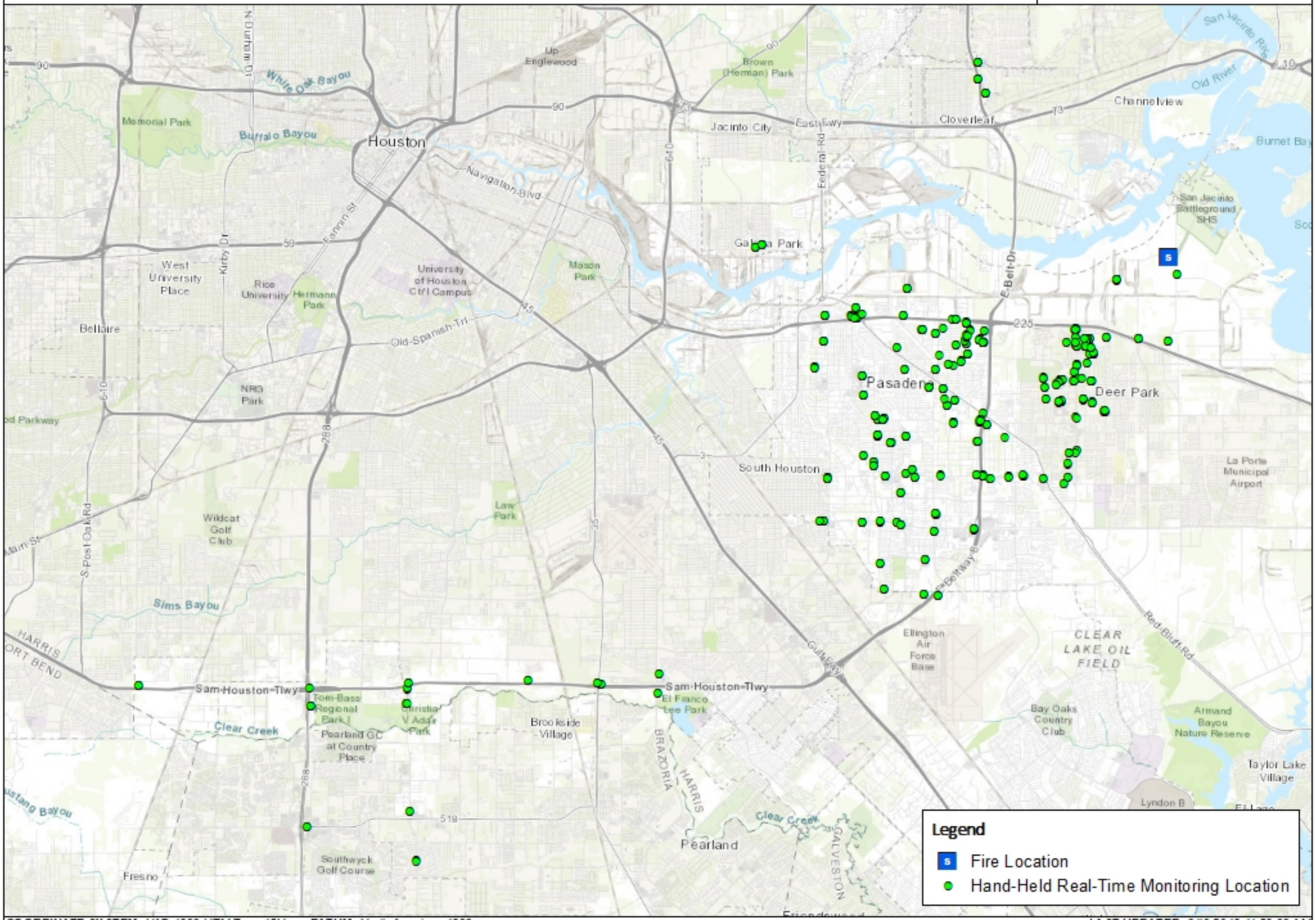
CTEH

Hand-Held Real-Time Monitoring Locations

ITC Tank Fire Deerpark, TX

0 2.5 5 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



Legend

- Fire Location
- Hand-Held Real-Time Monitoring Location

COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983* LAST UPDATED: *3/18/2019 11:59:02 AM*

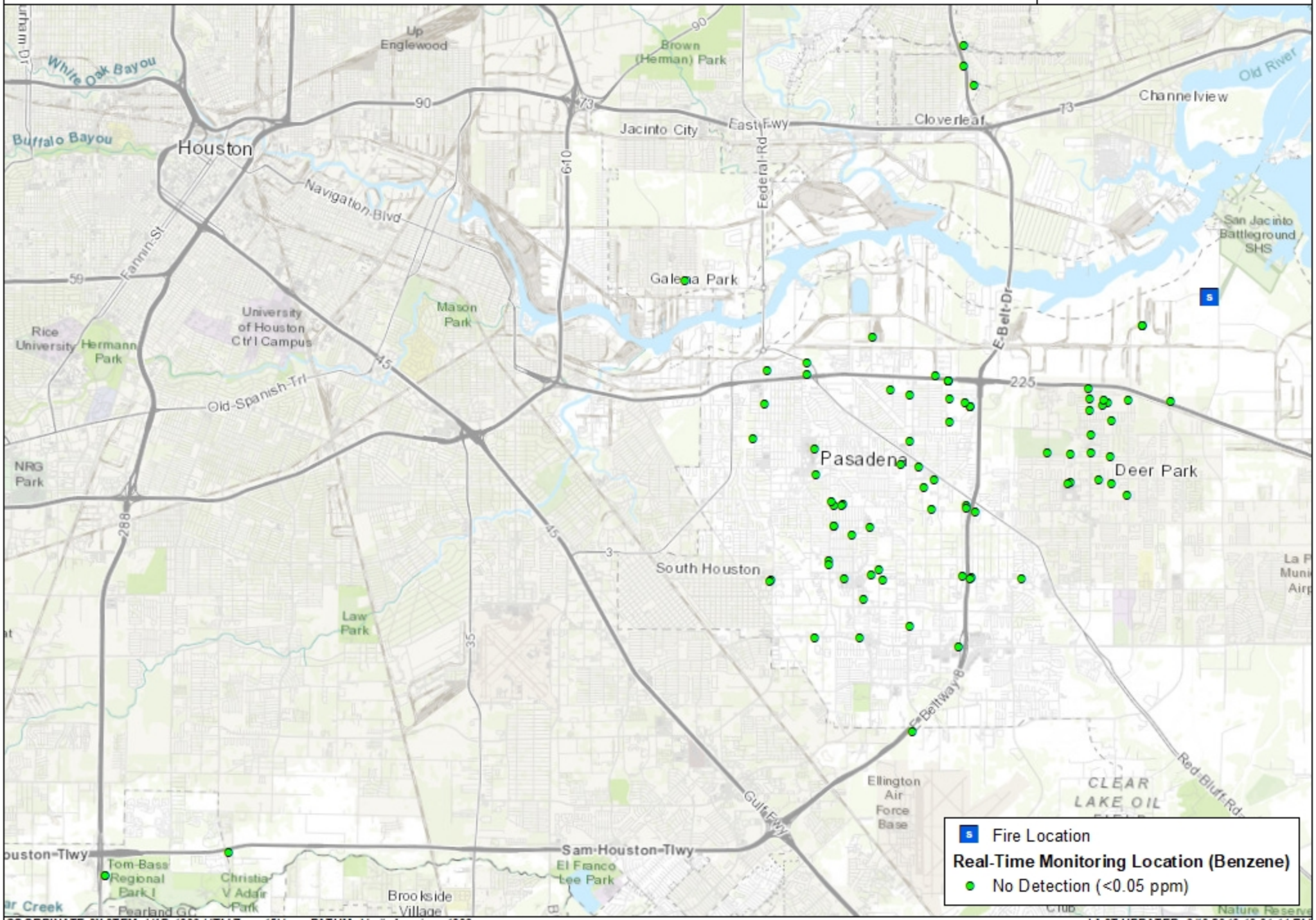
CTEH

Hand-Held Real-Time Monitoring Locations (Benzene)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 3/18/2019 12:01:14 PM

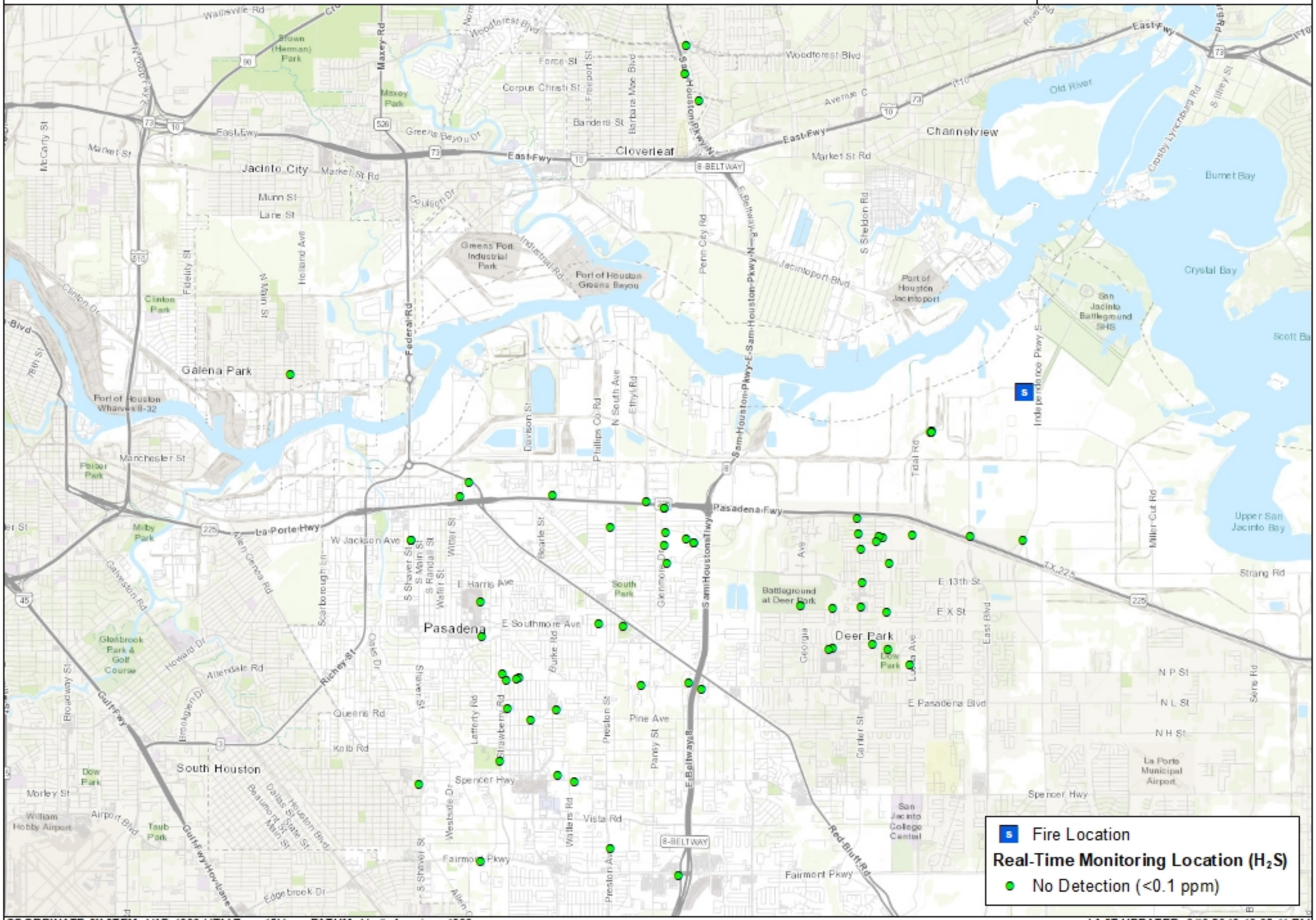
CTEH

Hand-Held Real-Time Monitoring Locations (H_2S)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SY STEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

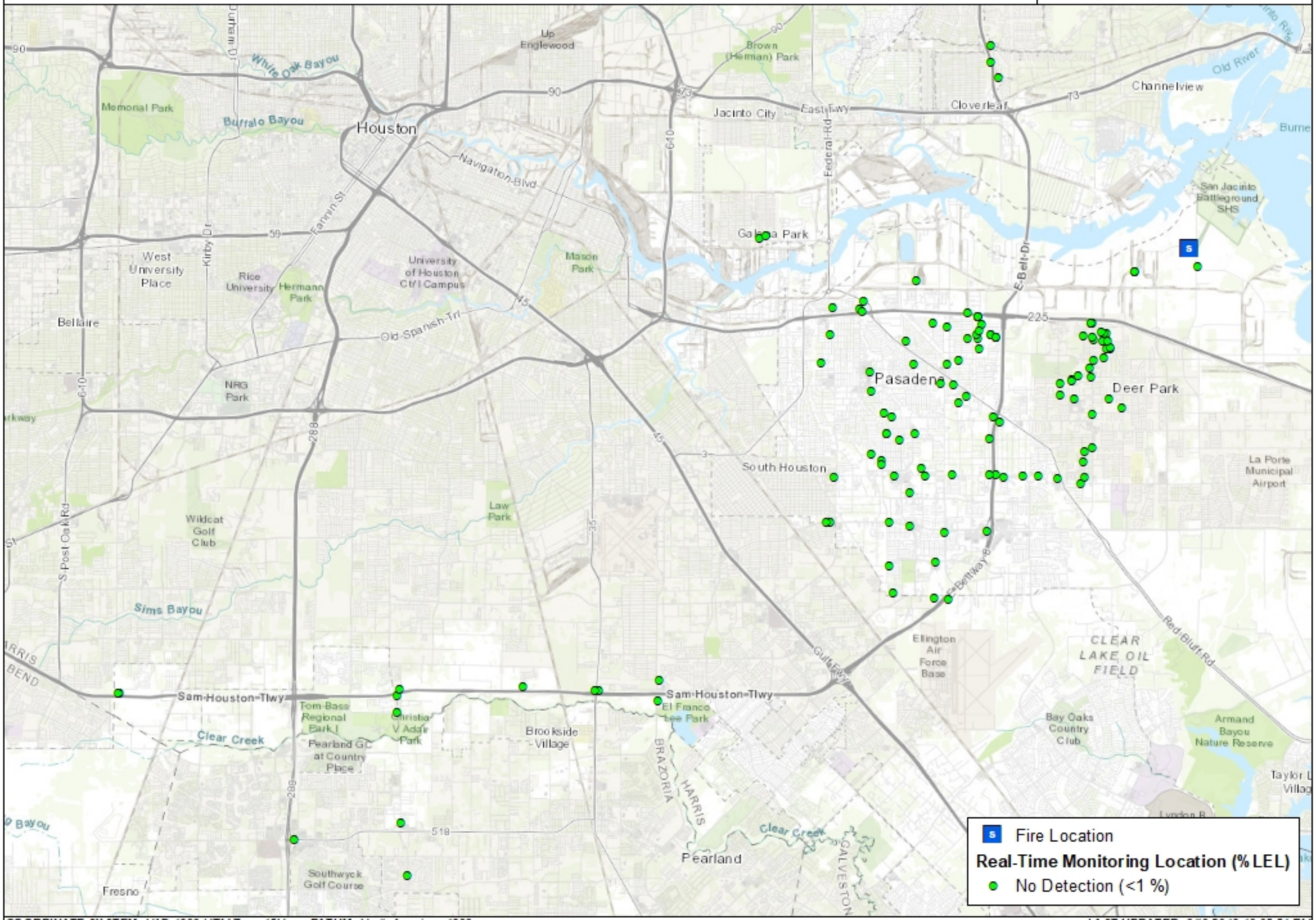
LA ST UPDATED: *3/18/2019 12:05:11 PM*

Hand-Held Real-Time Monitoring Locations (% LEL)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

LAST UPDATED: *3/18/2019 12:05:51 PM*

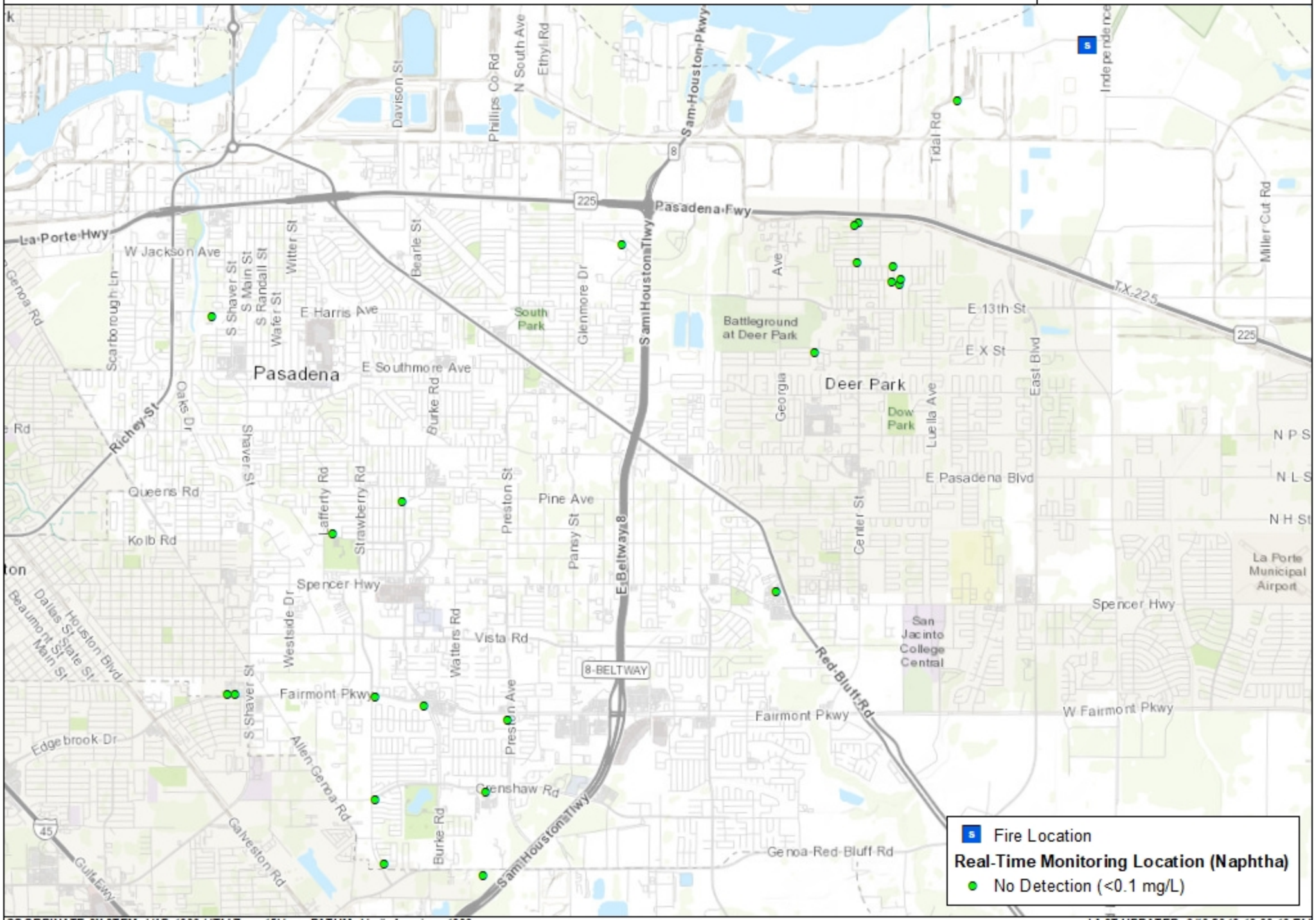
CTEH

Hand-Held Real-Time Monitoring Locations (Naphtha)

ITC Tank Fire Deerpark, TX

0 1 2 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 3/18/2019 12:06:12 PM

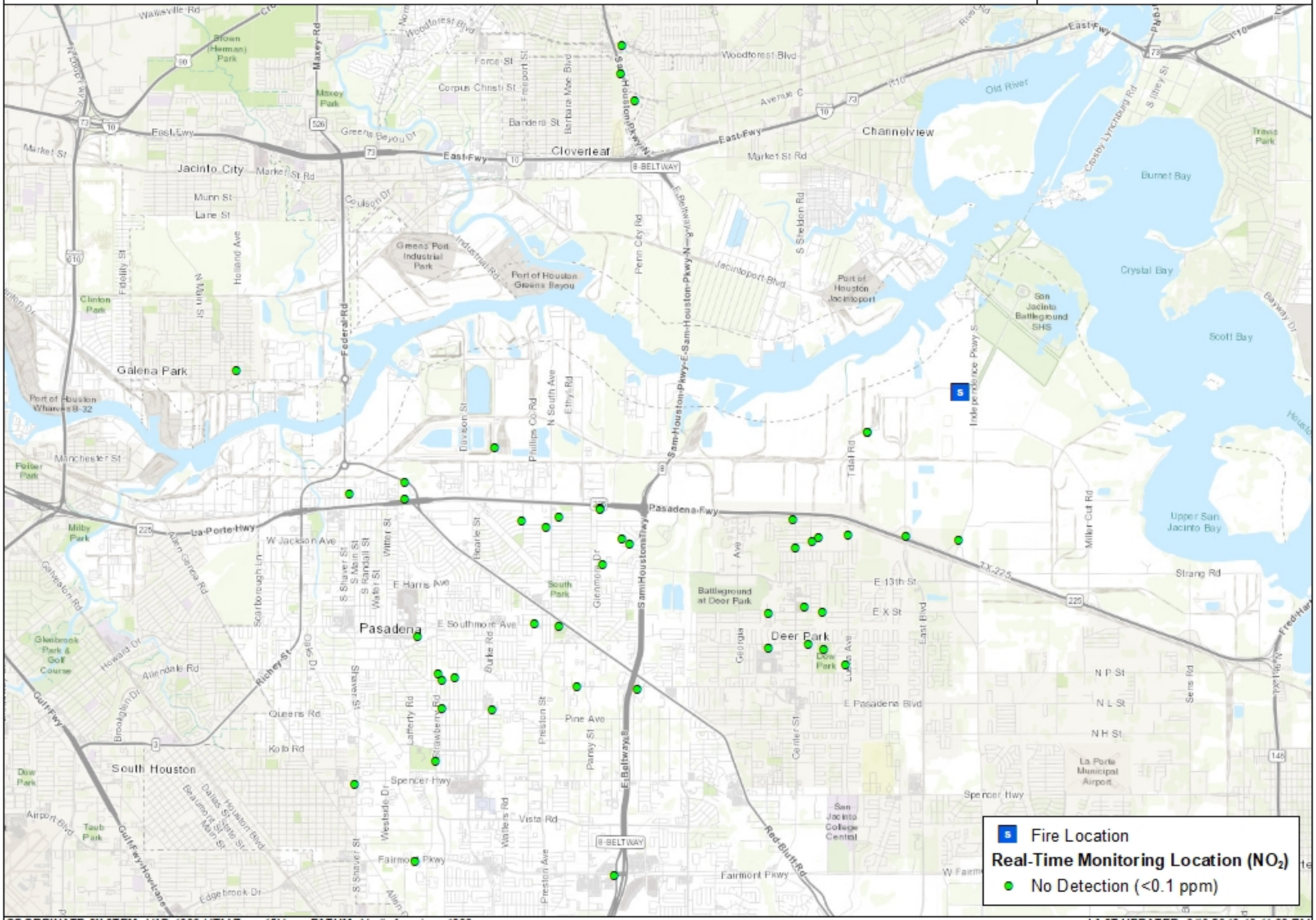
CTEH

Hand-Held Real-Time Monitoring Locations (NO_2)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SY STEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

LA ST UPDATED: *3/18/2019 12:11:29 PM*

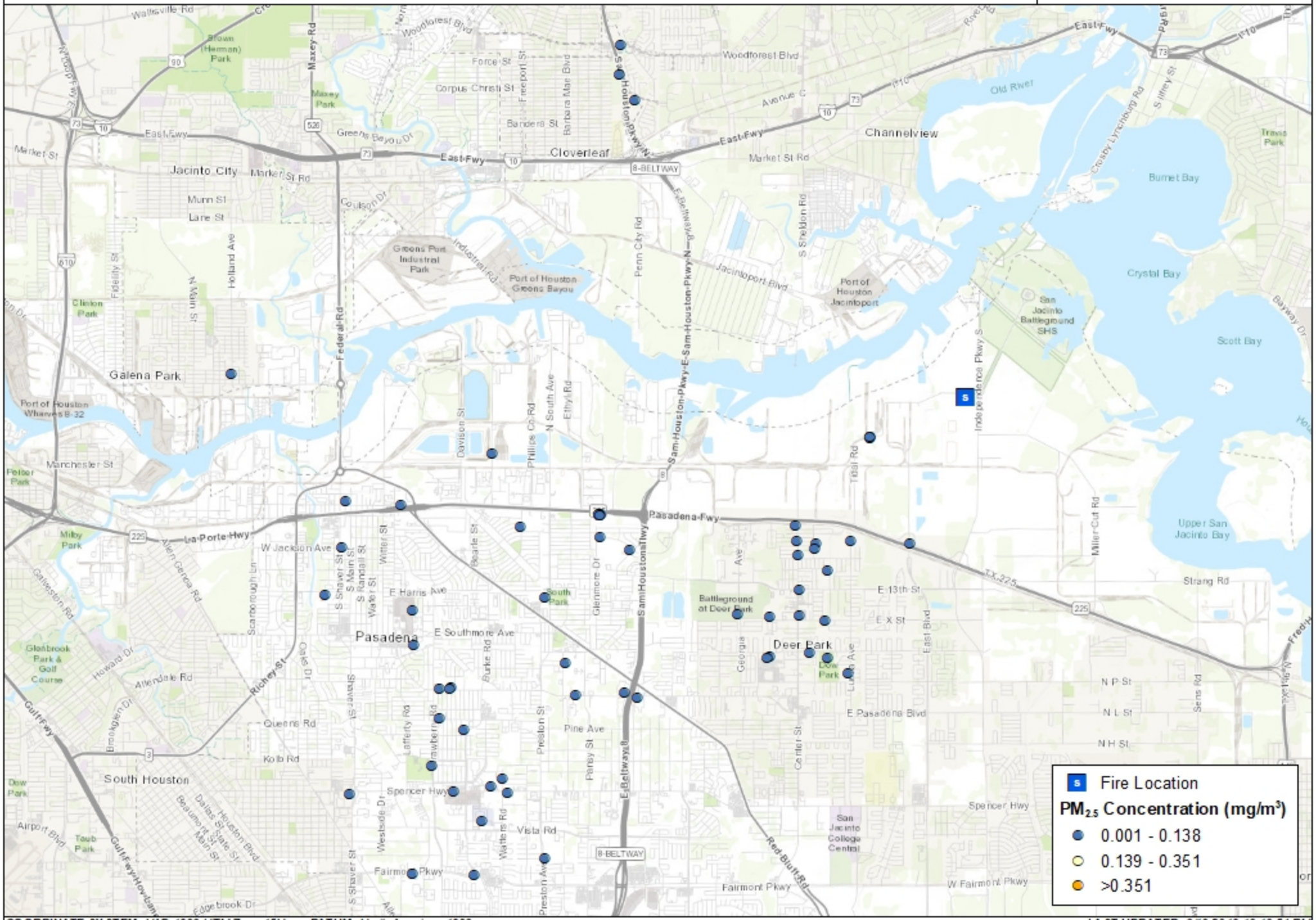
CTEH

Hand-Held Real-Time Monitoring Locations ($PM_{2.5}$)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SY STEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

LA ST UPDATED: *3/18/2019 12:12:54 PM*

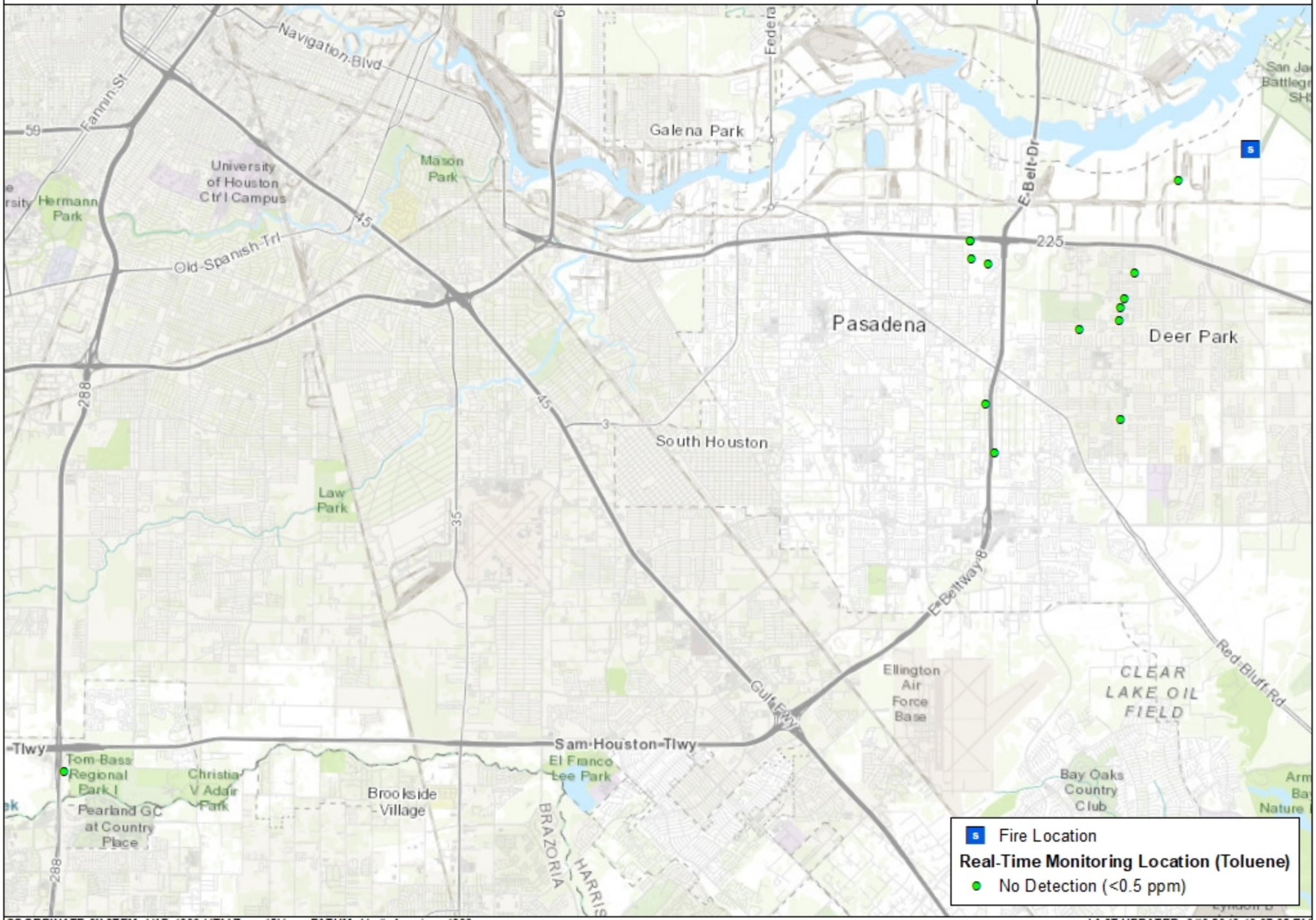
CTEH

Hand-Held Real-Time Monitoring Locations (Toluene)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

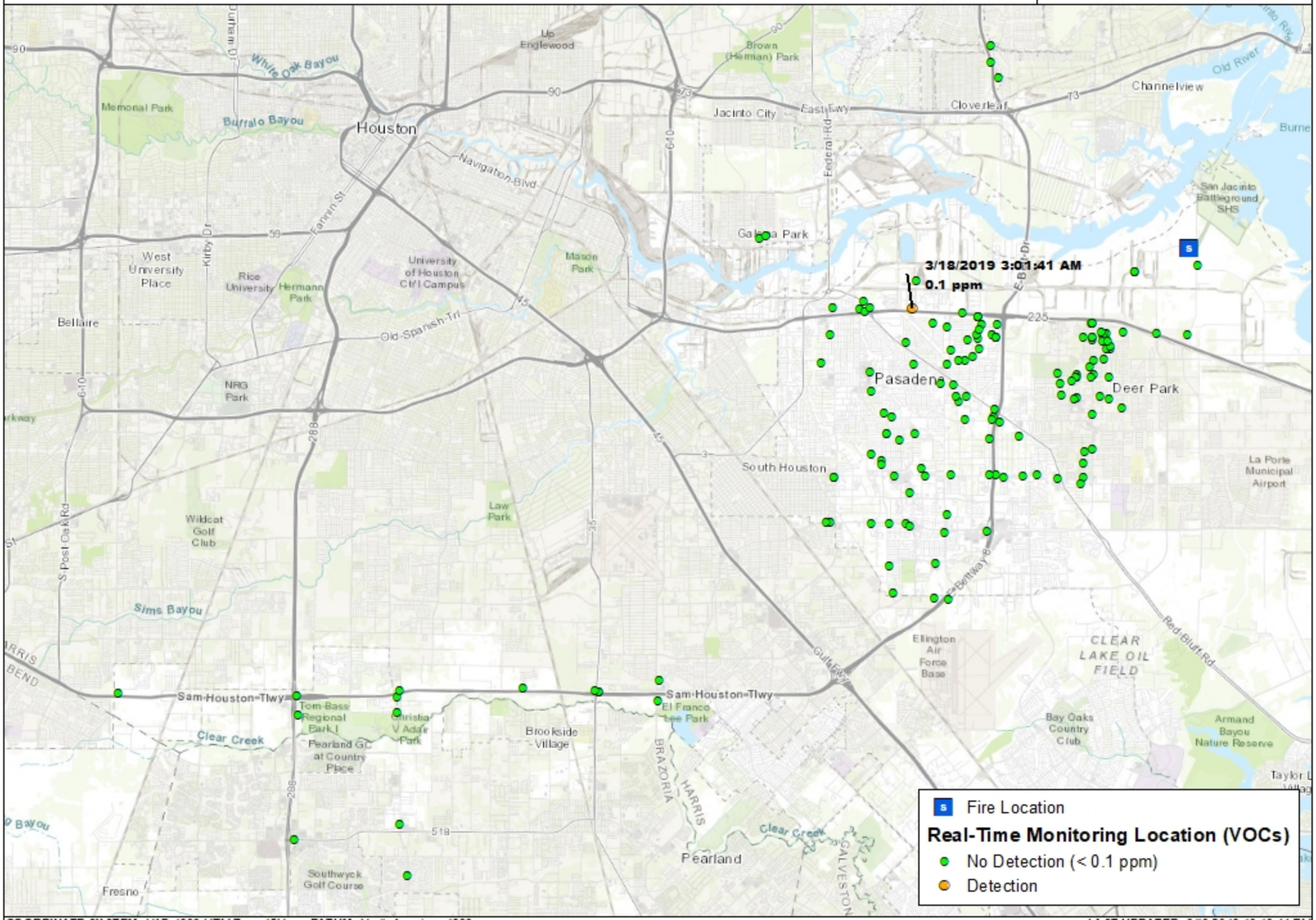
LAST UPDATED: *3/18/2019 12:07:25 PM*

Hand-Held Real-Time Monitoring Locations (VOCs)

ITC Tank Fire Deerpark, TX

0 1.5 3 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SY STEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

LA ST UPDATED: *3/18/2019 12:18:44 PM*

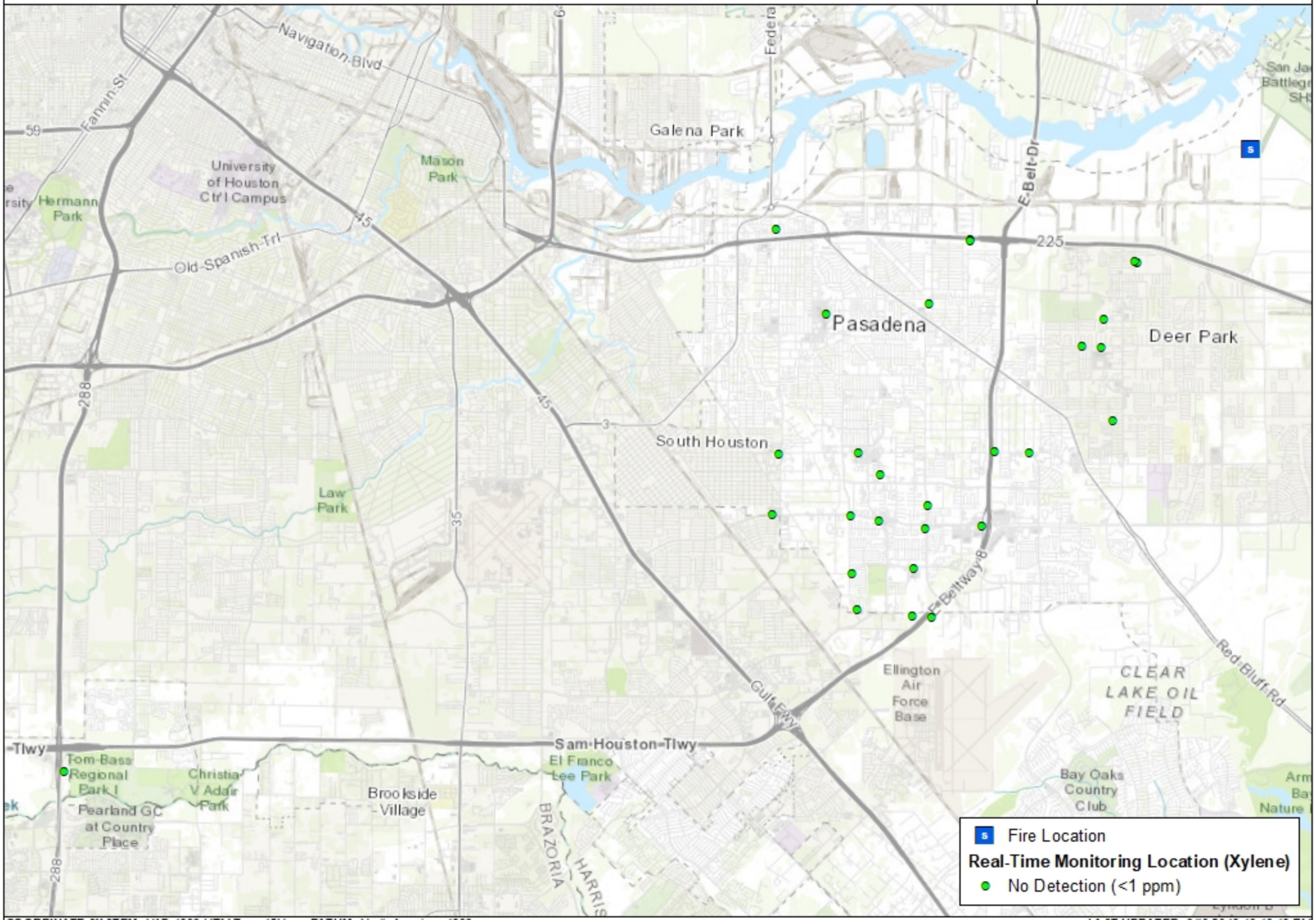
CTEH

Hand-Held Real-Time Monitoring Locations (Xylene)

ITC Tank Fire Deerpark, TX

0 1 2 Miles

Project:111356
Client: ITC
City: Deerpark, TX
County: Harris



COORDINATE SYSTEM: *NAD 1983 UTM Zone 15N* DATUM: *North American 1983*

LAST UPDATED: *3/18/2019 12:18:19 PM*

Attachment B

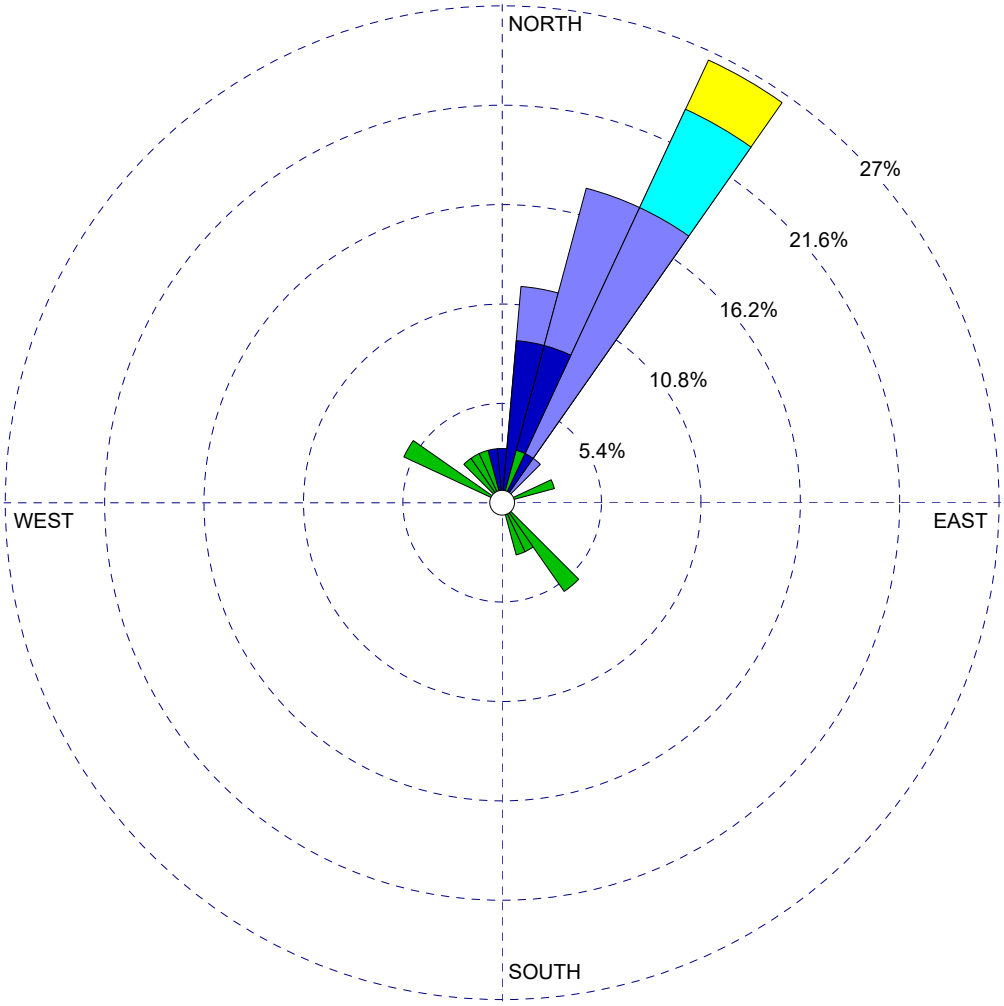
Meteorological Conditions

WIND ROSE PLOT:

Station #Lynchburg Ferry

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)

- >= 11.10
- 5.00 - 11.10
- 4.00 - 5.00
- 3.00 - 4.00
- 2.00 - 3.00
- 1.00 - 2.00

Calms: 5.88%

COMMENTS:	DATA PERIOD: **Start Date: 3/17/2019 - 00:00** **End Date: 3/18/2019 - 09:00**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **5.88%**	TOTAL COUNT: **34 hrs.**	
	AVG. WIND SPEED: **2.31 m/s**	DATE: **3/18/2019**	PROJECT NO.: **111356**